

Abstract of the Disclosure

A multi-stroke air cylinder providing a precisely directed and controlled stroke in the face of lateral, torsional and tilting loads on a tooling plate. The multi-stroke cylinder utilizes a plurality of mechanically linked pneumatic or hydraulic pistons having different stroke lengths that can be added together in any combination, allowing the user to select any stroke length up to a predetermined, total combined stroke length, in increments equal to the stroke length of the smallest cylinder. The multi-stroke cylinder includes a head assembly having a fluid inlet for introducing fluid to the cylinder at a first pressure. The cylinder also includes a first positioning system having a plurality of pistons capable of moving a piston rod away from the first positioning system, and a second positioning system located between the head assembly and the first positioning system. The second positioning system comprises a plurality of movable pistons for displacing the piston rod a preselected distance and at least one elongated fluid supply member secured to a respective one of the pistons of the second positioning system for introducing a fluid between adjacent pistons. When a plurality of fluid supply members are used in the second positioning system, they are concentrically arranged and are at least partially coextensive with one another.